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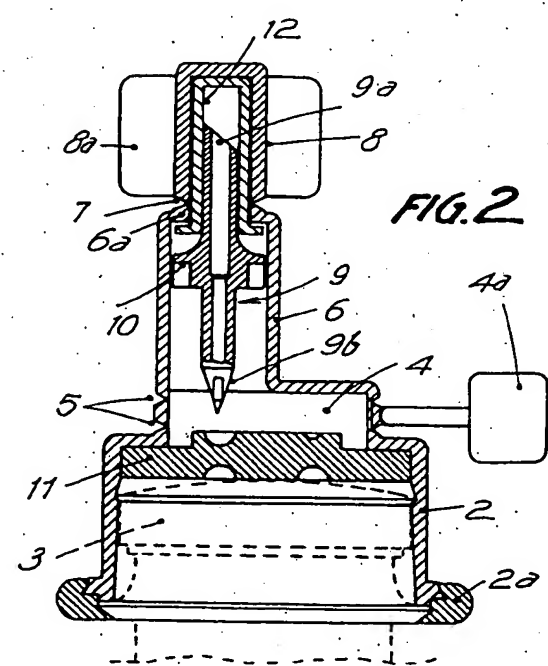
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Infusion flask with a liquid transfer device.

The mouth 3 of the flask is fitted with a liquid transfer device (1) in the form of a stopper (2) with a pierceable disc (11) at the bottom. This bottom is open and extends in a tearable neck (4) which defines a closed tubular portion (6) that can be separated from the stopper (2). A tubular connected piece (9) with acutely pointed ends (9a, 9b) is arranged inside the portion (6), said tubular connecting piece being able to move axially in order to pierce the disc (11) and having a widening (10) in the form of a piston which limits the movement of the piece (9) between the disc (11) and a seat (6a) of the tubular portion (6), from which extends a closed portion (8) which can be separated from said tubular portion. The connecting piece (9) is originally fitted with a cover (12), housed within the closed portion, which can move axially and which has a stop that prevents it from being extracted from the tubular portion (6). To pierce the disc (11) and transfer a liquid from a tube or vial to the flask provided with the transfer device (1), the portion (8) is first separated to expose the cover (12). The tubular piece (9) is then pushed so that its end (9b) pierces the disc (11). Finally, the neck (4) is torn so as to separate the portion (6) and the cover (12) is extracted.



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The present invention relates to an infusion flask with a liquid transfer device for clinical use which enables the liquid contained inside a tube or vial to be transferred directly to the flask containing the infusion.

BACKGROUND OF THE INVENTION

The administration of drugs by the intravenous route is often carried out by adding the drug to a flask of the type used for administering a solution, known as an infusion flask. The drug is normally added to the infusion flask by extracting it from the tube by means of a syringe provided with a needle which is used to perforate the stopper of the infusion flask.

This series of operations designed to introduce the drug into the infusion flask carries with it the risk of contamination of the drug, as well as the risk of possible injuries to the personnel who handle the needle and syringe.

DESCRIPTION OF THE INVENTION

In order to solve the drawbacks described, the infusion flask with liquid a transfer device of the invention has been conceived.

This infusion flask is provided with a pierceable seal and is characterized essentially in that the transfer device consists of a body in the form of a stopper that can be coupled to the mouth of the flask with an interposed pierceable sealing disc. The stopper extends from the bottom in a tearable external neck from which extends a tubular section provided with a weakened tear line defining a closed end portion that can be separated from the rest. A tubular connected piece, both of its ends acutely pointed, is arranged inside the tubular body, said tubular connecting piece being able to move axially in order to pierce the sealing disc which one of the ends faces a short distance away. This connecting piece is originally provided with a protective cover fitted around the end opposite the one which faces the sealing disc, housed within the closed end portion of the tubular section, such that it can move axially inwards but is provided with a stop that prevents it from being extracted.

The tubular body is provided with an internal annular seat just in front of the tear line. The tubular connecting piece is in turn provided with an intermediate widening in the form of a piston which constitutes a limiting stop for the axial movement between said seat and the sealing disc.

Advantageously, both the neck and the end portion, which can be separated from the assembly by tearing, are provided with external gripping means to make them easier to tear off.

BRIEF DESCRIPTION OF THE DRAWINGS

In order that the present invention be better understood, the accompanying drawings show by way of non-limiting example one practical embodiment of the infusion flask with the transfer device.

In said drawings, figure 1 is an exploded longitudinal section view of the components of the transfer device before it has been fitted to the flask. Figure 2 is longitudinal section view of the components of the device assembled in their original positions once fitted to the flask. Figure 3 is a view similar to that of previous figure in which the tubular end portion which surrounded the cover fitted over one end of the connector. Figure 4 is a view similar to that of the previous figure once the cover has been squeezed in order to move the connector which has pierced the sealing disc. Figure 5 is a view similar to those of the previous figures in which the neck that formed part of the stopper has been torn in order to separate the tubular body and the protective cover, exposing the connector such that it can pierce the seal of the tube containing the drug that is to be introduced into flask to which the device is fitted.

DESCRIPTION OF A PREFERRED EMBODIMENT

The infusion flask is fitted with a liquid transfer device which consists in the drawings of a body 1 moulded as a single piece, which comprises a cap 2 that can be hermetically fitted to the neck and mouth 3 of an infusion flask and fastened thereto by means of a weld 2a (figure 2).

From the bottom of the cap 2 protrudes a neck 4 defined by weakened lines 5 from which a tab 4a extends laterally to make it easier to tear said neck by pulling it. An eccentric tubular body 6 extends from the neck and is provided with a weakened line 7 that defines a closed portion 8 at the end. This portion 8 is provided with external radial tabs 8a to make it easier to break the line 7 and detach said portion.

An axially moveable tubular connector 9 made of plastic is housed inside the tubular section 6, the ends 9a and 9b of said connector being acutely pointed. This connector is provided with an intermediate widening 10 in the form of a piston to limit the movement of the connector between an internal seat 6a and a sealing disc 11 which is pressed by the cap 2 against the mouth 3 of the flask.

The connector 9 is fitted with a protective cover 12 around the end 9a which is housed within the end portion 8 of the tubular extension 6.

As can be appreciated from the above description and the accompanying drawings, to use the flask with the liquid transfer device once it has been fitted to the mouth 3 of the infusion flask, the

end portion 8 first has to be separated, gripping it by the tabs 8a and rotating it so as to tear the line 7. The cover 12 which protects the end 9a of the connector 9 (figure 3) is thereby exposed. This cover 12 is then pushed manually so as to move the connector 9 until the end 9b thereof pierces the seal 11 of the flask (figure 4).

The movement of the connector 9 is limited by the widening 10 which acts as a stop between the seat 6a, situated between the extension 6 and the end portion 8, and the seal 11.

The assembly formed by the neck 4 and the tubular extension 6 is then detached by pulling the tab 4a so as to tear the lines 5.

To introduce a drug, contained inside a tube or vial (not shown) provided with a pierceable stopper, to the infusion flask, the protective cover is removed from the end 9a and the seal of the tube is pierced with said end of the connector 9.

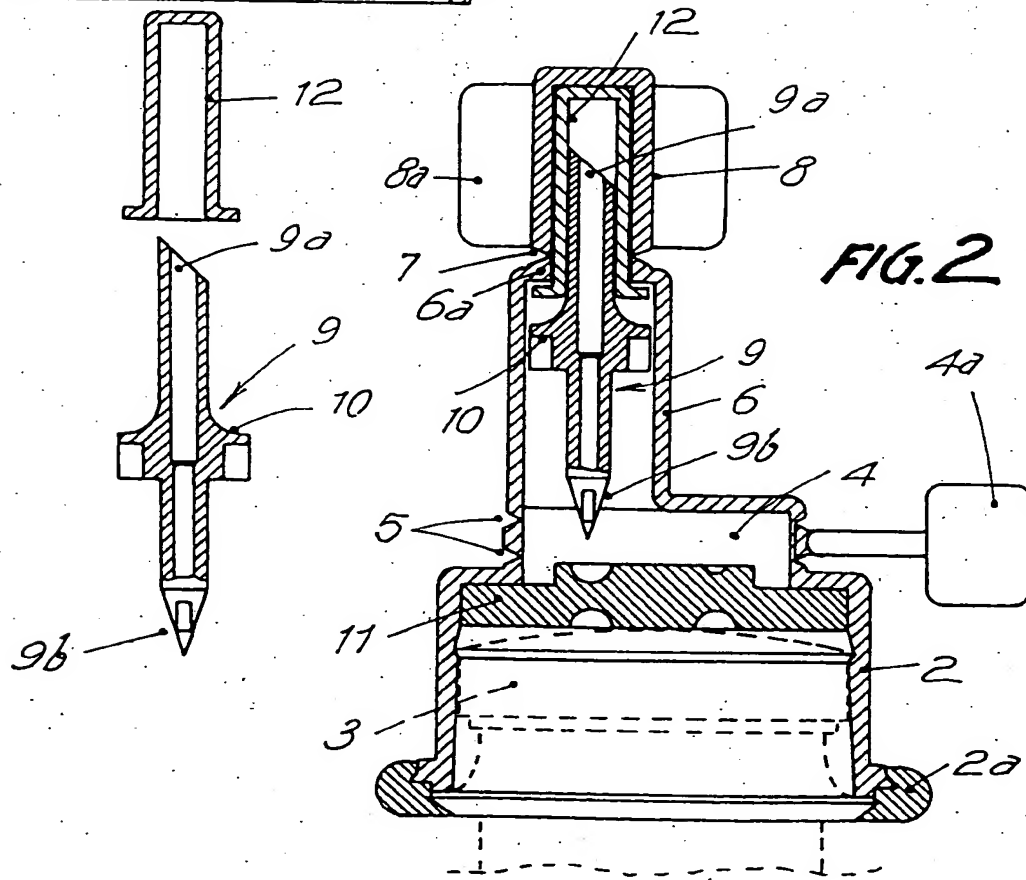
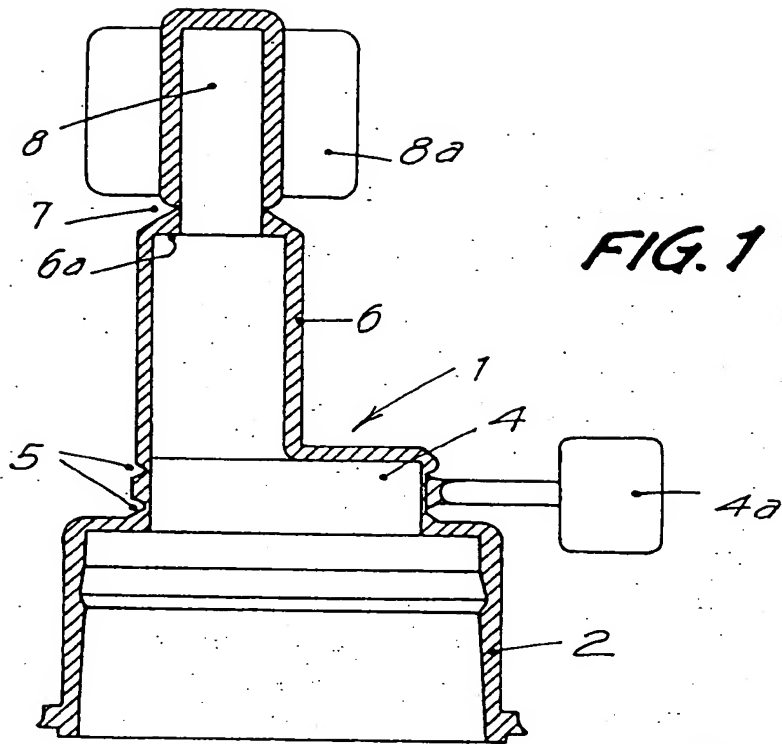
In this way, it is not necessary to extract the drug from the tube using a syringe and a needle. As a result, the handling of these elements and possible contamination are eliminated, as well as the risk of the staff carrying out the operation pricking themselves.

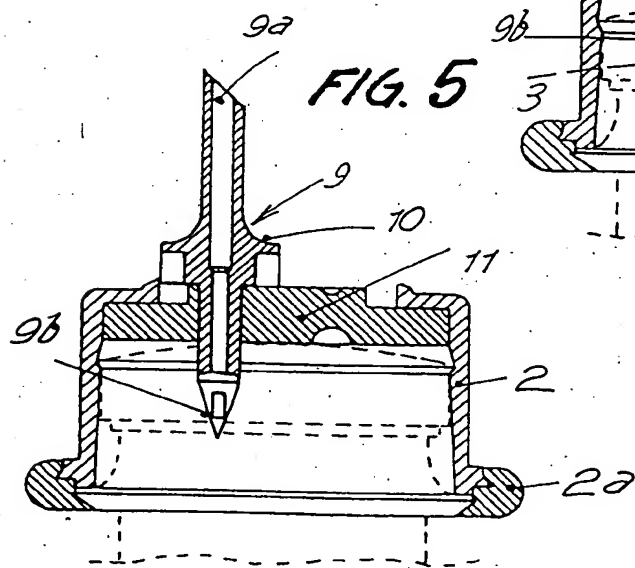
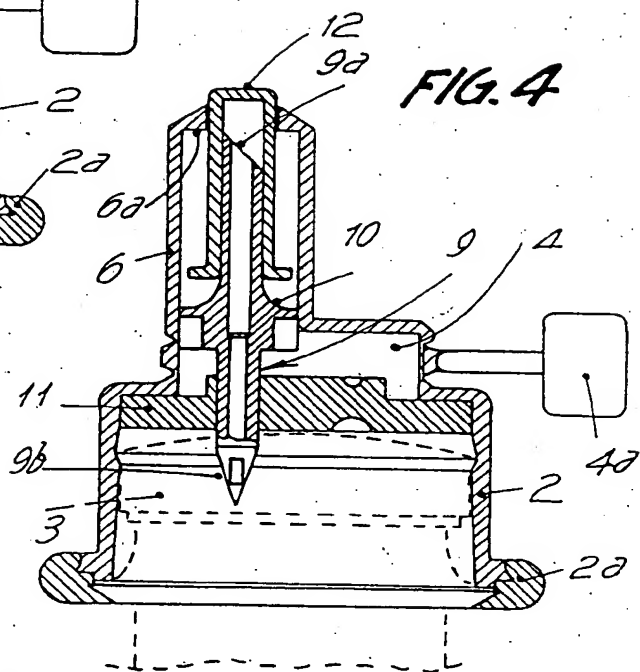
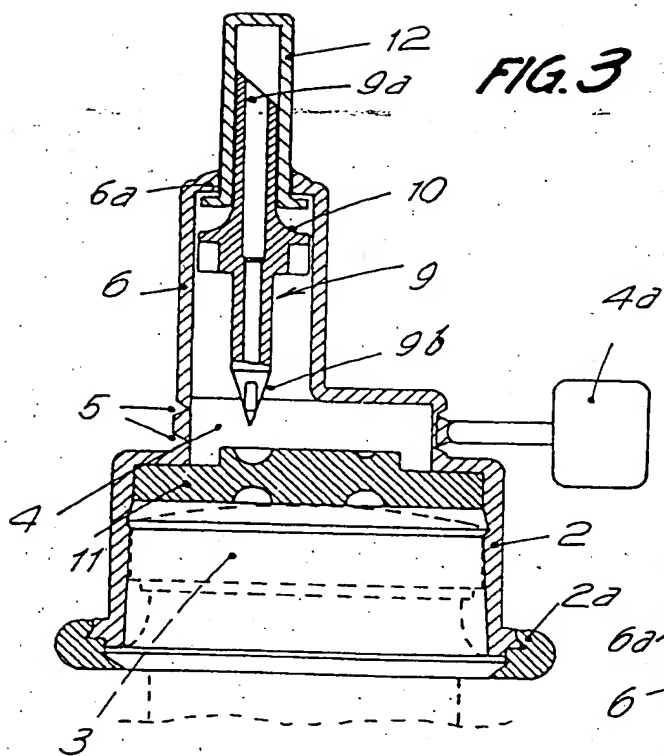
The materials used to manufacture the components of the flask with the drug transfer device, as well as the shapes and sizes thereof and all other details which may arise, are independent of the object of the invention providing they do not affect its basic concept.

Claims

1. An infusion flask with a liquid transfer device, provided with a pierceable seal, containing a liquid drug, characterized essentially in that the transfer device consists of a body in the form of a stopper that can be coupled to the mouth of the flask with an interposed pierceable sealing disc, said stopper extending from the bottom in a tearable external neck from which protrudes a tubular section provided with a weakened tear line defining a closed end portion that can be separated from the rest; a tubular connected piece, both of its ends acutely pointed, is arranged inside the tubular body, said tubular connecting piece being able to move axially in order to pierce the sealing disc which one of the ends faces a short distance away; this connecting piece is originally provided with a protective cover fitted around the end opposite the one which faces the sealing disc, housed within the closed end portion of the tubular section, such that it can move axially inwards but is provided with a stop that prevents it from being extracted.

2. An infusion flask with a liquid transfer device according to claim 1, characterized in that the tubular body is provided with an internal annular seat just in front of the tear line, whilst the tubular connecting piece is provided with an intermediate widening in the form of a piston which constitutes a limiting stop for the axial movement between said seat and the sealing disc.
3. An infusion flask with a liquid transfer device according to claim 1, characterized in that both the neck and the end portion, which can be separated from the assembly by tearing, are provided with external gripping means to make them easier to tear off.







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EUROPEAN SEARCH REPORT

Application Number
EP 94 50 0126

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 6)
Y	US-A-4 296 786 (BRIGNOLA) * column 9, line 44 - column 12, line 61 * * figures 19-24 * ---	1,2	A61J1/00
Y	US-A-4 624 667 (RUTNARAK) * column 2, line 60 - line 65; figures 1,2 * -----	1,2	
			TECHNICAL FIELDS SEARCHED (Int. Cl. 6)
			A61J
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 11 October 1994	Examiner Godot, T
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons A : member of the same patent family, corresponding document			